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SCIENCE NEWS LETTER

Vol. 53, No. 7

THE WEEKLY SUMMARY OF CURRENT SCIENCE • FEB. 14, 1948

Long-Necked Immigrants

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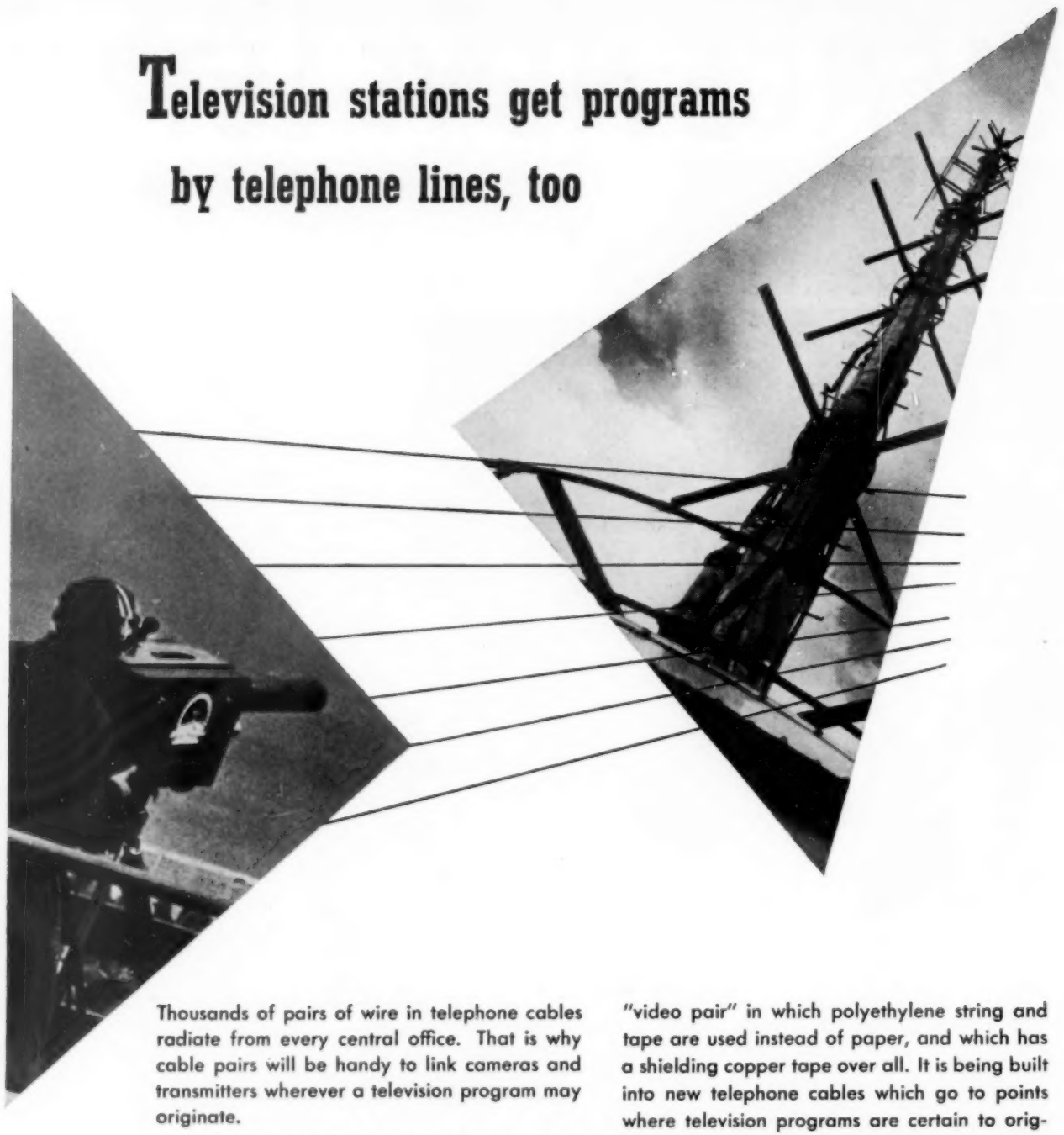
A SCIENCE SERVICE PUBLICATION

Television stations get programs by telephone lines, too



Thousands of pairs of wire in telephone cables radiate from every central office. That is why cable pairs will be handy to link cameras and transmitters wherever a television program may originate.

Since cable pairs are designed first for voice transmission—top frequency, about 3200 cycles per second—the loss at picture frequencies up to 4,000,000 cycles is high, so an amplifier is inserted about every mile. Equalizing networks are also needed to bring the losses at all frequencies to the same value.

Recently, the Laboratories have developed a "video pair" in which polyethylene string and tape are used instead of paper, and which has a shielding copper tape over all. It is being built into new telephone cables which go to points where television programs are certain to originate. Losses are so much less that amplifiers can be four miles apart.

Inside an all-weather sheath, "video" travels safely and reliably alongside your telephone call, a sound program, telegraph signals, pictures for tomorrow's papers. This service of the telephone cable was ready when television needed it because of Bell Laboratories activity.

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NUCLEAR PHYSICS

New Atomic Development

Suggestion that some day we may have a meson atomic bomb comes from the discovery that the most familiar kind of meson will produce fission of uranium.

➤ ENERGY may be blasted out of the atom by a lighter weight particle than the prime "trigger" of the atomic bomb, the neutron.

Scientists attending the American Physical Society meeting in New York were told of the promise of the meson, alias mesotron, in this respect. This fundamental particle of matter has not yet been artificially produced although it is generated by the powerful cosmic rays entering from outer space the earth's outer atmosphere with tremendous energies.

Dr. John A. Wheeler, the young Princeton University physicist specializing on the structure of the atom, has figured out that the most familiar sort of meson (there are probably four or five kinds of them) will produce fission of uranium. It is reasonably probable that it will split asunder the hearts of other heavy atoms with release of energy, that is, the turning of mass into energy, which is what happens in the fission of uranium or plutonium by neutrons (the process of the atomic bomb).

This is a very exciting idea and one that may be upsetting even to the international balance of atomic power. If and when the meson is created under control and aimed at materials that it can fission, it may be necessary to bring other elements than uranium and thorium under control of national and international atomic energy commissions.

Of course, we are a long way from a meson atomic bomb or atomic power plant. The experimental demonstration of meson fission has not yet been made. We are at an earlier stage in the possible realization of meson fission than the world was in 1939 when neutron fission of uranium was demonstrated in Germany.

The least that has happened on this new atomic frontier is that, as Dr. Wheeler says, " experimental and theoretical studies of the interaction of negatively charged mesons with atomic nuclei furnish another point of advance on the elementary particle problem."

What seems to happen is that mesons are able to move in orbits around the atomic nucleus which resemble the orbits of electrons in shape but are in size 200 times smaller. The mesons jump from one of these orbits to another and release energy which should be able to initiate a special type of fission in uranium or heavier nuclei. If they can, the energy release figures out to be about half as much again as the energy given off by uranium that is fissioned by good old reliable neutrons.

A next step in the attempts at practical meson fission will be creation of mesons in new giant "atom-smashers", five of which capable of doing so should be in operation this year.

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AERONAUTICS

New British Helicopter Similar to Airplane

➤ A BRITISH helicopter, which has just made its first flight, looks more like an ordinary airplane than other craft of this type. The resemblance is due to a normal tail with twin rudders, and stub wings.

This Fairey Aviation company's craft has the ordinary overhead horizontally rotating lifting blades, but it has also a conventional propeller at the tip of its starboard wing. This provides forward propulsion, and also counteracts the tendency of the craft to rotate caused by the main rotor.

It is an experimental model, capable of seating four persons. Advantages claimed for the design include greater safety than with ordinary helicopters, higher forward speed, and greater comfort.

Progress is reported on a freight-carrying helicopter which has three rotors. It will be capable of carrying 24 passengers or three tons of cargo. Claims are that it will be the fastest and most powerful helicopter yet built. It has a 1640 horsepower Rolls-Royce Merlin engine.

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MEDICINE

Alcohol Banishes Cancer In Mice—But Mice Die

➤ CANCERS in mice, of the type known as lymphosarcoma, have stopped growing and begun to disintegrate after injections with small amounts of 95% alcohol, in experiments reported by Dr. Allan D. Bass and Miss Marion L. H. Freeman of the Syracuse University College of Medicine.

The effect was discovered almost accidentally. The two researchers were injecting various drugs, dissolved in alcohol, into mice with malignant tumors. They found that destruction of the

RESEMBLES AIRPLANE—This British experimental helicopter looks like orthodox aircraft because it has a normal tail with twin rudders and stub wings. Advantages claimed for its unique design are greater safety, higher forward speed and greater comfort. It can seat four people including the pilot.

growths was practically as great when alcohol alone was used.

The typical dose was a few drops (one-fiftieth of a cubic centimeter) of the 95% alcohol injected directly into the abdominal cavity. Weaker solutions, such as 19% alcohol, had no noticeable effect.

There is just one drawback, so far as possible applicability in human medicine is concerned—a high percentage of the treated mice died.

Technical presentation of the experimental results is given in *Science*, (Jan. 30).

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MEDICINE

Urge Examination of Hip

➤ EVERY baby should have its hip joints examined before the age of six months, Dr. Vernon L. Hart of Minneapolis declared at the meeting of the American Academy of Orthopedic Surgeons in Chicago.

Prevention of life-long deformity due to a dislocated hip is the reason he urges this examination.

"The only hope for cure of these patients, suffering from congenital dislocation of the hip, is early recognition and treatment during the age period of infancy before the infants begin walking," Dr. Hart said in his paper.

Three signs that may mean the baby's hip is dislocated are: 1. Extra skin folds of the thigh; 2. shortening of the distance from the pelvis to the knee; 3. limitation of the hip in spreading apart the knees when the hip is flexed.

If any one of these signs is present, the doctor should have an X-ray study made.

The normal socket of the hip joint, Dr. Hart explained, is "deep like a cup and provides a buttress and good stability for the head of the femur or thigh bone. If the socket develops abnormally and becomes flat and saucer-like instead of a deep cavity, then the buttress for the head of the femur is absent and displacement of the head of the femur from the socket may result. The displacement may be complete or incomplete.

"Complete displacement or dislocation may occur during intrauterine development (before birth); but more often the displacement remains incomplete, or a subluxation, until the infant is about six months of age or until the time the child begins walking or weight bearing. Dislocation of the hip joint is always painless and the child begins walking about the usual time or a month or two later. At first the limp is very slight and is not recognized usually until some months later, when the dislocation has increased.

"Before walking begins the only malformation is the flat socket and the displacement which is a consequence of the shallow and flat socket. After walking begins many other changes take place in the bone and cartilage of the pelvis, socket, head, neck and shaft of the femur as well as changes in muscles, tendons, capsule and ligaments. These secondary changes develop very rapidly during the first several years of life and after a short time become a very serious obstacle to the treatment of the flat socket and dislocation or subluxation. After the age of about seven or eight years of life, the secondary changes are so serious and fixed and permanent that treatment for the dislocation becomes a very difficult problem.

"The hip joint displacement which is incomplete and which is called congenital subluxation of the hip may cause no limp, pain or disability until the patient reaches the age period of middle adult life—near 40 years of age. Disability is eventually caused by irritation over the years of a weight-bearing joint which was not entirely normal from the time of birth."

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CHEMISTRY

Find New Types of Gold

➤ MOST Californians are celebrating the one-hundredth anniversary of the discovery of gold which led to the famous gold rush. But a scientist at the University of California announced that he, too, has discovered gold—at least two new varieties of the element gold plus one new type of platinum.

The new discoveries of precious metals will not set off a new gold rush. They were made with the atom-smashing 60-inch Crocker Laboratory cyclotron at the University. Chemical separations of bombarded metal targets in the atom-smasher revealed new radioactive forms of the precious metals, Geoffrey Wilkinson reported in the *Physical Review*, (Feb. 1).

New varieties of gold are 39.5-hour gold and 4.7-hour gold. These forms of the valuable element give off radiation. The time figures are known as their half-lives, the period of time in which they lose half of their radioactivity. Another new precious metal is 3.0-day platinum.

The scientist also described new studies with other forms of the two precious metals, including 190-day gold, 15.8-hour gold, approximately-one-day gold and 4.33 day platinum.

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MEDICINE

Cure for Undulant Fever?

Hope that a combination of streptomycin and sulfadiazine may be completely effective against this disease was provided by nine recovered patients.

➤ THE combination of a sulfa drug and streptomycin, anti-germ chemical from an earth mold, may provide a cure for undulant fever, the disease that killed Edsel Ford, it appears from a report by four University of Minnesota medical scientists in the *Journal of the American Medical Association,* (Feb. 7). The scientists are Drs. Wesley W. Spink, Wendell H. Hall, James M. Shaffer and Abraham I. Braude.

Nine patients recovered from the disease completely when given both streptomycin and sulfadiazine, they report.

Neither drug alone, nor any other treatment, has given as good results, they state. But an even more effective weapon against the disease may come, they suggest, from the intensive investigations now being made of other drugs like penicillin and streptomycin.

The treatment was effective in both acute and chronic undulant fever. Particularly encouraging is the fact that it was effective in complications of the disease such as subacute bacterial endocarditis (a form of heart trouble) and the spinal disease, spondylitis.

The idea of using both drugs together came partly from tests the scientists were making on chick embryos and partly from experience with a patient who had improved when treated with streptomycin alone.

Toward the end of treatment and after the streptomycin was stopped, undulant fever germs in his blood were found to have developed resistance to streptomycin. The germs proved rather sensitive to sulfadiazine in laboratory tests, however, so the patient was given large doses of the sulfa drug. Whereupon his fever disappeared and there were no more undulant fever germs in his blood. Unfortunately, he had developed a severe heart inflammation and died suddenly of heart failure, although the germs that had caused the heart trouble had been eradicated.

The chick embryos had been used instead of guinea pigs to provide a faster way of screening possible remedies for undulant fever. Five sulfa drugs, penicillin and streptomycin were each tested. Although the sulfa drugs and streptomycin each, when used alone, prolonged the lives of infected chick embryos, none of the remedies alone was very effective in killing the germs. But the combination of large doses of sulfadiazine with streptomycin did bring about 100% sterilization of the undulant-fever-infected chick embryos.

Undulant fever is also known as Malta fever and brucellosis. The germs are called Brucella, after Sir David Bruce, British medical officer who first discovered them. The disease attacks cattle, swine and goats and is responsible for heavy economic losses in livestock. Cattle owners in the United States lose more than $50,000,000 annually, swine owners more than $10,000,000 through this disease, it is estimated. Among humans there are believed to be 30,000 to 40,000 active cases annually.

Humans get the disease through contact with infected animals, their secretions and carcasses, and from drinking raw milk from infected cows and goats.

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PHYSICS

Liquid Surfaces Measured

➤ THAT fine film which forms a liquid surface has measurable depth, scientists at the Stanford Research Institute declared. A million of these liquid surfaces, piled one on top of another, would give a depth of one inch, they claim.

To determine the depth of a liquid surface, they developed an instrument, as yet without a name, which measures the minute distortion of polarized light reflected off them. This depth is not a matter of purely scientific interest; it has a practical value in the fields of lubrication, oil exploration and biology, in fact wherever the reaction of liquid surfaces in contact with other materials is a factor.

The method of measuring the depth of a liquid surface was carried out by Stanford scientists working on a Naval Research contract under Dr. A. Paul Brady, research director, and the overall supervision of Dr. J. W. McBain, consultant on research. Two others who assisted were Dr. J. C. Henniker and Dr. Frank A. Lucy.

Classical mathematical theory assumed liquid surfaces had no depth. General scientific opinion for the past several decades thought the depth to be a billionth of an inch rather than the millionth now claimed. This belief was based on the assumption that attraction between molecules in the liquid was effective only over this very short range.

The work at Stanford is claimed to prove that molecular attraction takes place over a wider range than ever proved before. Dr. McBain explains the action by comparison with that of the ordinary magnet. It has a short direct attraction on a cluster of nails, but can pick up a series of them, one hanging to another.

Molecules in a liquid surface, he believes, polarize several neighbors and these in turn polarize others. This chain-like relayed action extends over what he calls an "impressive distance."

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UPSET OF CLASSICAL THEORIES—Experiments shedding new light on the behavior of matter have resulted from the development of a new instrument, without a name as yet, which measures the minute distortion of polarized light reflected off liquid surfaces. Dr. A. Paul Brady is shown looking through this new instrument while Dr. J. W. McBain, research consultant, watches.

PHYSICS

Cosmic Ray Plateau Found

It is some 34 miles overhead. Instruments in a V-2 rocket were fired up to an altitude of 100 miles to determine the top of the atmosphere for cosmic rays.

➤ THE top of the earth's atmosphere for the cosmic rays that bombard us from outer space has been discovered by scientists who put their instruments into a captured Nazi V-2 rocket that was fired up to 100 miles over the White Sands, N. Mex., Proving Ground last July.

Some 34 miles over our heads, the intensity of the cosmic ray bombardment begins to become constant. This is the beginning of what scientists call the "cosmic ray plateau." From this high-altitude region out into space the cosmic radiation is believed to remain virtually constant.

Discovery of the start of the cosmic ray plateau was announced in the *Physical Review*, (Feb. 1), by Dr. J. A. Van Allen of the John Hopkins University Applied Physics Laboratory, Silver Spring, Md., and Dr. H. E. Tatel of the Carnegie Institution of Washington, formerly with the Applied Physics Laboratory.

They put a Geiger counter in the rocket fired at White Sands, July 29, last year. As the rocket shot up to an altitude of 100 miles, the scientists received a record of the cosmic ray count by means of a radio telemetering system. The rocket's flight gave them counts of cosmic rays at the highest altitudes at which the mysterious rays have been studied.

Two important discoveries were made from records of the flight:

1. Start of the cosmic ray plateau is at about 34 miles altitude. From this height up to the peak of 100 miles, the cosmic ray count was nearly constant.

2. The intensity of cosmic rays in the space out from the earth is two to three times greater than scientists had calculated on the basis of lower altitude observations.

Below 55 kilometers, or approximately 34 miles, the cosmic rays varied from one or two counts a second at sea level to a peak of 49 counts per second in the neighborhood of 12 miles above the earth. But for the highest 66 miles of the flight, the cosmic ray count was steadily a little more than 22 counts per second.

It is believed that this intensity of cosmic rays extends out into space until the still-unknown source of the radiation is approached.

Dr. Van Allen has left for White Sands to make arrangements for another rocket flight scheduled Feb. 19. This flight, if successful, will give the scientists more information about these new discoveries.

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GEOLOGY

Find Mineral Deposits

➤ AMERICA'S minerals, of the kinds we have, will last longer than some predict, due to new discoveries by government and other agencies, the Secretary of the Interior, J. A. Krug, indicates in his annual report. There are, of course, essential minerals not found within the United States.

Old-time prospecting for minerals is out. Surface deposits, most of them, have been found and many exhausted. Below the surface, according to Dr. W. E. Wrather, director of the Geological Survey, lie enormous volumes of rock which contain concentrations of useful minerals which in many instances are as abundant as those closer to the surface.

Modern scientific explorations, carried out by geologists, geophysicists and geochemists must be used to discover this hidden wealth. The Survey, he states, has developed highly refined techniques in its program of exploration and appraisal of deeply buried ores. They are already in use.

Additions to the nation's mineral reserves are reported by the U. S. Bureau of Mines. They include copper, iron, and lead-zinc ores, not in large amounts but sufficient to produce commercial metals. One deposit contains 21,000,000 tons of black sand composed of 54% titanium, 15% zircon, 14% staurolite, and other minerals. This is important with titanium oxide now becoming a principal pigment in white paints and the wider uses of zirconium in electrical and chemical porcelain and in metals and alloys. A new mica deposit and a barium sulfate deposit are also reported.

Important activities of the Bureau of Mines are concerned with the development of processes to recover metals from low-grade ores which must be increasingly used as the better grades are exhausted, or to make America independent of imports. The developed processes accomplish purification largely by electricity. They include electrolytic cobalt and the extended use of electrolytic manganese and chromium in ferroalloys.

Fuel oil from oil shale was a major accomplishment of the Bureau of Mines during the year. A pilot plant at Rifle, Colo., is now producing 100 barrels a day, and new laboratory facilities have been completed at Laramie, Wyo. From work at both, oil shale promises relief from future shortages such as now exist. Progress also is reported in making fuel oils from coal and lignite.

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MEDICINE

Suggest Figuring Age After 40 Biologically

➤ A NEW way to tell how old a person is after he has passed his fortieth birthday has been worked out by Dr. Harry Benjamin of New York City. Instead of counting birthdays, you count up the age of various organs and organ systems of the body, taking into account also heredity, living and dietary habits and personal history of illnesses, accidents and the like.

By this method of determining age, a man of 70 years may be found to have a biologic age, as Dr. Benjamin calls it, of 55 years. Then, since he has the life expectancy of a man of 55, which for a white American is 18 years, the 70-year-older has a good chance of living to "the ripe old age of 88." This gives him a life expectancy of nine years more than he would have from figuring his life expectancy on his calendar age of 70.

A nice part about this way of figuring age is that it gives a person a chance to make himself younger. The example Dr. Benjamin gives of this is someone who is not dangerously ill or disabled, yet not well enough to be considered in average good health. The favorable points in such a person's health might make him 10 years younger than the calendar says he is. But the bad points would make him about 15 years older. The two cannot be balanced off against each other, but the bad points might be improved,

and the age thereby lowered, by treatment and other measures.

To get your biologic age you will have to pay a visit to your doctor. After he has examined you, he can estimate the age of your heart and blood vessels, your nervous system, your mental functions, your digestive system, skin, eyes, ears and other of the 20 items in Dr. Benjamin's health inventory. Your heart and blood vessel system could change your calendar age by five to 30 years. Heredity, living habits and nervous system could modify it by five to 20 years. Skin, eyes and ears would modify it by only five to 10 years. Details on estimating biologic age appeared in the *Journal of Gerontology*.

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MEDICINE

Check Resistance in Germs

Penicillin sensitivity is restored to resistant disease germs by briefly associating them with germs of another family such as streptococci.

➤ THE frightening idea that penicillin will become useless as a remedy in a few years because the disease germs it now checks will all have developed resistance to its action is somewhat dispelled by a discovery of Dr. A. Voureka, British Council Research Scholar working in the Wright-Fleming Institute at St. Mary's Hospital, London, where penicillin was discovered.

Germs that have developed resistance to the famous mold remedy can be made sensitive to it again in a few minutes. All that is necessary is for the resistant germs to associate briefly with germs of another family. Resistant staphylococcus germs, for example, were made sensitive by associating with streptococci or with diptheria, typhoid and pneumonia germs.

Dr. Voureka started with the idea that sensitivity to penicillin might depend on some chemical or physical factor. In that case, resistant germs, he reasoned, might be able to borrow some of the factor from sensitive germs. So he grew resistant and sensitive germs together. The resistant ones duly became sensitive.

Then he found he could achieve the same result by letting the two kinds of germs stay together for five minutes. Mere association in the same tube was enough. It did not matter about temperature, either. Resistant germs acquired sensitivity in the refrigerator, the incubator or at room temperature. They even acquired it from germs which themselves were resistant to penicillin, and from substances produced when other germs were destroyed by bacteriophage.

The penicillin-sensitivity restored to germs that had grown resistant lasts a long time.

The work is still preliminary and so far only seven out of 20 strains of germs tested have had their penicillin resistance reversed. Dr. Voureka does not say, in his report to the *Lancet*, (Jan. 10), British medical journal, how his discovery will be applied in the case of a patient for whom penicillin has become useless because his germs have developed resistance to the mold chemical. But, he points out, germs often grow in association with other germs in the human body. And he believes that the idea that all strains of staphylococci will become resistant to penicillin in the near future "must be reconsidered."

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PLANT PATHOLOGY

One Moldy Lemon Ripens 500 Others Too Soon

➤ THE old adage about one rotten apple spoiling the whole barrel holds true, in modified form, for lemons. One thoroughly green-moldy lemon can cause 500 others to ripen before they are wanted—which is equivalent to spoiling them.

Lemons are commonly kept in storage for five or six months before ripening, states Dr. Jacob B. Biale, University of California horticulturist, but if one of them becomes infested with green-mold fungus it will produce enough ethylene gas to speed the ripening and yellowing of the sound fruit to as short a period as ten days.

To prevent molding, Dr. Biale recommends storage at lower temperatures, also under an atmosphere containing only 5% of oxygen instead of the 21% present in ordinary air.

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***GIANT TUBER**—This root of a perennial wild cucumber dug up on the campus of Occidental College, Los Angeles, Calif., is 27 inches tall, 36 inches in diameter, 74 inches in circumference and weighs about 200 pounds. Dr. Frank J. Smiley, botany professor at the college, estimates that it is at least 20 years old. Not only is it unusual in size but shape also, for the usual wild cucumber root looks like a turnip.*

VETERINARY MEDICINE

Plans for Long Siege on Cattle Disease Being Made

➤ LEADERS in the American forces of scientists conducting the defense against foot-and-mouth disease already have provisional plans ready for their campaigns, in case the bill approved by the Senate agriculture committee is enacted. Defeated in their hopes for ending the danger by a quick, sharp mop-up of the infected area in Mexico, they now expect a long, tenacious, step-by-step siege.

Among the objects of research will be the various vaccines now used in Europe and other lands where the disease has long been entrenched. Some of these seem promising; though American workers have been reluctant to consider using vaccine defense as long as there was a chance to wipe out the Mexican infection and thus spare American stock-raisers and farmers the expense and trouble of buying and administering a vaccine.

Better and more scientific methods for clean-up and sanitation of infected premises will also be sought by the researchers. Up to now, emergency methods were employed that were known to be effective, with little regard to cost. Since we are going to have this thing to fight for years, probably, it seems advisable to refine methods and try for equal or greater efficiency at lower cost.

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VETERINARY MEDICINE

Red Squill Rat Poison Can Harm Other Animals

➤ RED SQUILL, widely recommended as a "safe" rat poison, non-toxic to other animals, is not as safe as commonly believed, declares Dr. Albert C. Nagle, veterinary physician of San Antonio.

Recently a valuable collie was brought to him, after it had been sick for three days. Only the most heroic treatment sufficed to save the animal's life.

When Dr. Nagle checked back on the history of the trouble, the owner at first could not recall seeing his dog eating anything that might have brought on the attack. Then he remembered that the dog had eaten a quantity of red squill wafers he had been using against rats, but because he had been told that red squill could poison only rats he had paid no further attention to the matter.

Because red squill in small quantities will cause vomiting, the poison usually serves as its own antidote in case of accidental swallowing. Since rats cannot vomit, the drug is effective against them. But this and other cases demonstrate that it can be poisonous to other animals if taken in sufficient quantity.

Dr. Nagle recommends, in a communication to the American Veterinary Medical Association, that a statement to this effect be added to the labels on commercial preparations of red squill intended for rat-killing purposes.

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NUTRITION

Appetite Is Poor Guide For Best Nourishment

➤ THE idea that you can rely on your natural appetite to guide you to the foods you need for best nourishment is not borne out by latest scientific studies, states Dr. Charles Glen King, scientific director of the Nutrition Foundation in New York.

Under controlled conditions, white rats have been shown to possess an ability to select certain minerals and vitamins on the basis of critical need. But their appetite guidance in that respect is not fool-proof. And when it comes to protein food, such as we get from meat, eggs, fish and milk, the animals' appetite may be way off as a guide.

Animals in a test by Dr. E. M. Scott at the University of Pittsburgh showed such gross lack of ability to select essential protein that they were at the point of starving from lack of protein even when the needed protein was in food cups beside them.

The animals also showed marked variation in ability to make proper selection of foods, even when genetic and environmental conditions were highly standardized. Rat A might select a pretty fair diet for himself but his brother from the same litter and living under the same conditions would fare badly.

"If a highly standardized animal, under laboratory conditions, has only a faulty guidance by spontaneous appetite," Dr. King points out, "it seems far less likely that human guidance would be adequate under the highly artificial and varied circumstances that surround the selection of foods in daily life.

"This does not mean, of course," he added, "that consideration of appetite can or should be disregarded. But the new evidence does reemphasize the necessity of providing for sound educational measures.

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IN SCIEN

MEDICINE

Nerves to Hip Joint Cut To Relieve Arthritic Pain

➤ RELIEF from pain caused by chronic arthritis of the hip is possible for aged patients who are not strong enough to undergo regular surgery, doctors were told at the Chicago meeting of the American Academy of Orthopedic Surgeons.

This merciful measure results from cutting the major nerves to the hip joint, explained Dr. Benjamin E. Obletz of Buffalo, N. Y.

The operation can be done on patients of any age for it involves a rather simple procedure, does not produce shock and enables the patient to walk the next day and leave the hospital in one week.

Forty-two patients on the average over 60 years old have received this new surgical treatment since May of 1946 and of these 28 have obtained some degree of relief from pain, Dr. Obletz stated. While in 14 no beneficial results were noted, there were no complications or ill effects in any of these patients.

This new type of operation was first reported by a Dr. Tavernier of Lyons, France.

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MEDICINE

Sulfa Tablets Should Be Crushed for Children

➤ WHEN you give a sulfa drug tablet to a young child, be sure the tablet is crushed and moistened with water, warns Dr. C. L. Heald of Sigourney, Iowa, in the *Journal of the American Medical Association* (Jan. 31).

The death of a two and one-half year old child prompted his warning. The child died of suffocation caused by half a sulfadiazine tablet prescribed by a physician. The tablet had stuck in her larynx when she tried to swallow it and although Dr. Heald rapidly cut an opening into her throat and removed the pieces of tablet it was too late.

Physicians should, Dr. Heald states, instruct parents on how to give these tablets safely or else prescribe one of the sugar lozenges or pleasant-tasting liquid sulfa drug preparations now available.

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E FIELDS

GENERAL SCIENCE

Immigrant Animals Are Quarantined at Athenia

See Front Cover

➤ ANIMALS being brought into the U. S. from abroad, such as the African giraffes shown on the cover of this week's SCIENCE NEWS LETTER, are quarantined at Athenia, N. J., the Department of Agriculture's "Ellis Island for animals." This quarantine helps keep dangerous diseases of both animals and man from being brought into the country by animals from abroad. Built in 1900, the Athenia station covers 52 acres with accommodations for 600 cattle or animals of comparable size.

The four-legged aliens get a thorough checkup from veterinarians, looking for such plagues as foot-and-mouth disease. If the animals are found to be healthy, they are sent on to their destination in this country. Animals with disease or suspected of carrying infections are either slaughtered at the Athenia station or shipped back to their native land.

Science News Letter, February 14, 1948

GENERAL SCIENCE

High School Student Builds "Glass Heart"

➤ BUILDING a "glass heart" for keeping animal organs alive for prolonged periods is the difficult feat accomplished by Lawrence J. Schaad, 17-year-old senior in Logan High School, Logan, Ohio. He got the idea from the famous device built some years ago by Col. Charles Lindbergh and the late Dr. Alexis Carrell, but his device is an improvement over theirs in at least one respect; it can be assembled out of stock laboratory materials such as flasks, U-tubes, ordinary glass tubing and stopcocks, and requires no special skill in glassblowing to construct.

The first model he built, Mr. Schaad states, was a failure, partly because the specimen to be kept alive could not be introduced easily, also because there was no way of keeping out trouble-making bacteria. In his improved apparatus he has overcome these difficulties. Since it is not practicable to sterilize the machine under steam pressure, he clears it of bacteria by flooding it with alcohol, then drying it with a current of filtered air.

His first test operation was with the heart of a frog. By the time he could get this small, hard-to-handle organ properly mounted it had stopped beating. However, it began again, and after two and one-half hours it was still beating as strongly as ever. It lived for several hours more.

Mr. Schaad sees research possibilities in the use of his device: "To me this seems to be an excellent way to study the action of living tissues because they are readily observable at all times. Possibly this method will prove useful in studying cancer and viruses, since affected tissues could be observed under controlled conditions. It might also be used in the isolation of tissue secretions."

Mr. Schaad is a winner in the Seventh Annual Science Talent Search, and will go to Washington, D. C., at the end of this month, for the finals of the competition for $11,000 in Westinghouse Science Scholarships. There he will meet with the 39 other finalists, attending the Science Talent Institute, to be held Feb. 27 through March 2.

Science News Letter, February 14, 1948

GENERAL SCIENCE

Bars on Cages Replaced With Shatterproof Glass

➤ SHATTERPROOF glass like that used on wartime airplanes has replaced bars in some of the cages in Chicago's Zoological Park. So strong is it that when several powerful great apes attacked it vehemently, immediately after its installation, they were completely baffled. Some of them continue stubbornly to hammer at it, but all they get is exercise.

The glass is of a familiar sandwich construction, consisting of two quarter-inch sheets of plate glass on the outside with a layer of tough plastic between them. Glass fronts on cages in reptile houses have previously been in use, but these consist of one thickness of plate glass only, and would not be safe for use in confining more aggressive animals like chimpanzees and orang-utans.

There are mutual advantages for animals and spectators in this more complete separation. Visitors can no longer toss peanuts, in violation of the rules, and poke through the bars at animals with umbrellas and canes. On the other hand, mischievous or malicious apes are no longer able to reach out and grab the hair or necktie of an unsuspicious visitor getting too close to the cage.

Science News Letter, February 14, 1948

ENTOMOLOGY

Ants Recognize Friends; Strangers Get Bum's Rush

➤ ANTS readily identify their friends; they also quickly recognize strangers that get into their colonies and unceremoniously throw them out, reports a youthful Fabre who is a senior at the Bronx High School of Science in New York. He is Kurt W. Kohn, 17 years old last September. At night, when his ants are asleep, he takes startrail photographs with a small telescope.

Immediate contact between individuals is necessary for recognition among ants, he states; either scent or touch seems to serve as means of identification. One stranger ant which he dropped into a colony of a different species was attacked by every ant she met but ignored by all the others, even though they sometimes missed contact by only a small fraction of an inch.

Mr. Kohn built an observation nest for better observation of his ants. The insects were penned between two eight-inch squares of glass, in an eighth-inch layer of soil. The whole nest was placed on a block of wood, with a water moat around it to keep the ants from straying.

Certain scents can disguise friends so that they are treated as strangers, he states. He scented up several ants with formic acid, the chemical-warfare agent the ants often use in their combats, and returned them to their nest. They were immediately thrown out, in exactly the same manner as were stranger ants that had been touched up with the same scent. Ants drowned in water, which presumably washed away their formic acid, were ignored by active worker insects. When other ants were stupefied with carbon tetrachloride vapor, which does not dissolve formic acid, the colony's judgment was better, though still not inerrant. They carried three unconscious friends into the nest and threw two out; at the same time they threw out four strangers but carried one into the nest. Apparently they discovered their mistake after a while, for they brought her out again and threw her away.

Mr. Kohn has also found evidence that the recognition-scent is hereditary; for when several ants reared from the pupal stage by stranger nurses were returned to their parent colony they were at once accepted, while their nurses were not.

Mr. Kohn is one of 40 high school seniors from all over the country who are winners in the Seventh Annual Science Talent Search.

Science News Letter, February 14, 1948

ASTRONOMY

Reforms in Our Calendar

Various changes are made from time to time to correlate the months with the seasons. The year is longer than 365 days, less than 366, so Leap Year was instituted.

By MARTHA G. MORROW

➤ THAT extra day the calendar-makers give us once every four years, the bonus of a Feb. 29, this year will come on Sunday. Four years from now brazen young ladies are supposed to "have their day" on Friday, Feb. 29. And in 2100, although divisible by four, there just won't be any Leap Year Day at all.

These various changes in our more or less orderly calendar are made to keep our months eternally at the right season of the year. The system of adding an extra day every fourth year was adopted about 2000 years ago, that of omitting the extra day three out of every four times that a century ends was inaugurated less than 400 years ago.

The calendar of all western nations has been borrowed from the Romans. Their month, based upon the periodic repetitions of the phases of the moon, was about the same length as the lunar month—29 or 30 days. To keep the months in order, they were forced frequently to insert an extra month. A more orderly calendar was definitely needed.

Julius Caesar

Upon the advice of the Alexandrian astronomer Sosigenes, Julius Caesar adopted 365¼ days as the true length of the year and ordained that every fourth year should contain 366 days. The tropical year, however, is 11 minutes, 14 seconds shorter than this, so in the course of 1000 years the Julian calendar becomes nearly eight days too long.

In time the vernal equinox had become earlier and earlier. By 1582 it fell on March 11 instead of occurring on March 21, as it did at the Council of Nicaea in 325 A. D. Pope Gregory XIII, therefore, upon the advice of the astronomer Clavius, ordered the calendar corrected by dropping ten days.

In Catholic countries, where the Gregorian calendar was adopted earlier than in the other Christian countries, the day following Oct. 4, 1582, was called the fifteenth instead of the fifth.

To avoid further displacement of the beginning of spring, Gregory decreed that the rule of adding an extra day every fourth year should be followed except in the case of those century years whose number is not divisible by 400. Thus 2000 A. D. will be a leap year, but 2100 will not, nor was 1900.

Eleven days had to be dropped by England and her colonies—including America—to bring the calendar in line when the new type calendar was adopted in 1752, almost 200 years after it came into use in some European countries. Since 1800 and 1900 were not leap years in the Gregorian calendar, at present that and the Julian calendar differ by 13 days.

Tropical Year

The tropical year actually consists of 365 days, five hours, 48 minutes and 46 seconds. The Gregorian year is thus about 26 seconds too long. But calendar experts won't have to worry for a few thousand years about an error amounting to one day.

The Egyptians, who had calculated as 365 days the time it takes the earth to circulate around the sun (the solar year), divided the year into 12 equal months each of 30 days, the remaining five days being devoted to festival holidays. Their weeks, however, were ten days long.

Nor did the calendar instituted by Caesar include any seven-day week. This was an eastern invention, used by the Babylonians and later by the Jews. Not until the fourth century was the week established in Christendom and Sunday proclaimed as the day of worship.

Both the Julian and the Gregorian calendars have months of irregular length. This also can be traced back to the time of the Caesars.

In reforming the calendar, Julius Caesar established the simple system by which the months, beginning with March, should have 31 days, alternating with months of 30 days, except the last month, February. This was to have 30 days in leap years only and 29 days in normal years.

But this reasonable rule was not long followed. The sixth month, Sextilis, was named after his successor, Augustus. The story goes that to make this month of August as long as that of July, named after the first Caesar, Augustus stole another day from February. Then to avoid having three consecutive months of 31 days each, he rescrambled the calendar a little more.

Proposed Changes

A number of reform calendars have been devised throughout the last century to correct such difficulties in our present calendar as:

1. Unequal quarters. One three-month period consists of 90 days, another of 92 days.
2. Unequal months. In normal years February has 28 days, whereas seven of the months are given 31 days each.
3. Indivisibility of months into weeks. At present each month consists of four weeks plus an odd number of days.

Several calendars have been sponsored during the present century, the idea being one should be adopted simultaneously by nearly all of the nations. Outstanding among these are a 13-month calendar and an equal-quarter calendar. Sponsors of these international calendars agree that the year should begin on Sunday, and each introduce an

FOUNDER OF OUR CALENDAR ***—Pope Gregory XIII gave his name to the Gregorian calendar which we use when in 1582 he ordered 10 days dropped from the Julian calendar to correct a discrepancy.***

LEAP YEAR—The extra day which comes on Feb. 29 was established to match more nearly the time it takes the earth to revolve around the sun. Pope Gregory initiated the rule of adding a day every four years except in the case of those century years whose number is not divisible by 400.

extra day each year—two in leap years—that is a true holiday and belongs to no day of the week. They both follow the Gregorian rule governing leap years.

Under both of these plans the same day of the year would always fall on the same day of the week. Thus New Year's Day, Fourth of July and other holidays would always come on the same day as well as the same date. This would avoid the uncertainty that is eternally arising concerning holidays. For instance, do workers get Friday off when Christmas falls on Saturday or Thursday?

Thirteen identical months of four weeks each are proposed in the International Fixed Calendar. In this method of reckoning days, each month begins on Sunday. The twenty-fourth of each month would always be a Tuesday and there is a Friday the thirteenth in every month.

13 Business Months

A number of businesses in the United States and Canada have actually tried operating on the 13 business months of four weeks each. International acceptance would be necessary, however, before such individual adoption could be given a fair trial.

The year of 12 months is divided into four equal parts by the World Calendar, which introduces certain reforms into the Gregorian calendar we use today. Each quarter consists of three months with a total of 91 days each. The calendar proposed by this organization, the most active today, has gained wide acceptance.

January, April, July and October, the first month in each quarter, always begin on Sunday and have 31 days. The other months of each quarter consist of 30 days. The second month of each quarter always begins on Wednesday; March, June, September and December start on Friday.

Year-End World Holiday

An additional day is inserted at the end of December and called Year-End World Holiday. The extra day introduced each leap year would appropriately be tagged onto the end of June, the month of brides.

Sponsors of the World Calendar have selected a date less than two years off as ideal for its international adoption. Jan. 1, 1950, was picked because both the present and the new calendars come together at that date, both years beginning on Sunday. Transition from the old to the new could be made much more smoothly than when the Gregorian calendar was adopted and people were cheated out of 10 to 13 days.

The difficulty of fixing the date of Easter is also avoided. This being an ecclesiastical matter, they leave that to the Church to determine.

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Racing boats, with hydrofoils under their hulls that lift them well out of the water when traveling fast, are capable of great speed; the hydrofoils are wing-like parts that project downward and backward.

America has *submarines* that can stay under water for weeks by use of the German "schnorkel" breathing tube; an attempt now is being made to generate oxygen from hydrogen peroxide so that the breathing tube will not be needed.

Printing and dry cleaning plants are decreasing operating costs by salvaging solvent vapors that have escaped into the air by the use of activated *carbon;* they are recovered by passing the plant air through the carbon which absorbs the vapors.

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NUTRITION

Butter Versus Margarine

Height and weight gains and general health of children found about the same in two-year study, whether margarine or butter is table fat.

➤ CHILDREN grow as well on margarine as on butter, Drs. Harry Leichinger, George Eisenberg and Anton J. Carlson of Chicago report in the *Journal of the American Medical Association* (Feb. 7).

The report, from the University of Illinois College of Medicine department of pediatrics, is of a study aided by a grant from the National Association of Margarine Manufacturers. Terms of the grant provided that findings of the study could be published regardless of results.

Unlike most studies of the relative merits of butter and margarine, human children instead of laboratory rats were the subjects.

The children ranged in age from three to 17 years and were orphans or half-orphans living in two different institutions. Those in one institution got only margarine, from vegetable fats and fortified with vitamin A, to spread on bread, and as the fat used on vegetables, in pastry and for frying. Butter was the only fat used for these purposes in the other institution.

The study went on for two years, during which time more than 200 records were accumulated. These included reports on children's health, monthly height and weight records, and red blood cell counts and hemoglobin determinations made at the beginning of the study and again one year later. Because some children stayed in the institutions a short time, all records for those studied less than six months were discarded. This left 160 records in the margarine group and 107 in the butter group.

At the end of two years, the average yearly gain in weight for boys getting margarine was 6.7 pounds, while that for boys getting butter was 8.1 pounds. The difference is not statistically significant, the scientists point out. Girls on margarine had a yearly average gain of 8.2 pounds, those on butter 6.3 pounds.

Yearly average gain in height for boys on margarine was 2.2 inches, for those on butter it was 1.6 inches. The figures for girls were 2.2 on margarine, 0.9 on butter.

The health of the children was "uniformly good so far as serious illness is concerned, regardless of whether margarine or butter was the source of the greater part of the fat in the diet," the scientists report.

"If there is a growth factor present in butter which is not present in margarine, there is no evidence in the present study that such a factor plays any important part in the growth of children as determined by increases in height and weight," they state.

"Margarine is a good source of table fat in growing children, as determined by a two-year study. Children readily accept margarine as a table spread when it is colored and served in pats.'

Science News Letter, February 14, 1948

GENERAL SCIENCE

Scholarship Offered for Teachers of Lip Reading

➤ A NEW kind of scholarship is being offered to prospective teachers of lip reading by the American Hearing Society, trustee of the Kenfield Memorial Fund.

Honoring Miss Coralie N. Kenfield of San Francisco, the scholarship provides $100 for a normal training course at any institution acceptable to the Teachers' Committee of the American Hearing Society.

Applicants must have ability to read lips, have personal characteristics necessary for successful teaching and meet certain educational requirements.

Science News Letter, February 14, 1948

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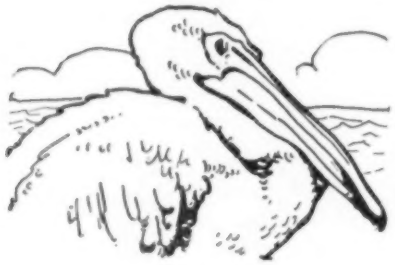
ORNITHOLOGY

NATURE RAMBLINGS

by Frank Thone



Pelican Myths

➤ PELICANS are familiar sights to winter vacationers in warmer parts of the country. They are amusing to watch as they strut pompously on the shore, reminding one irresistably of a certain type of statesman slightly overdoing his dignity. Afloat or in the air, however, they are more in their element; for heavy birds they are good fliers, and of course they are first-class swimmers.

There are two things rather widely believed about pelicans, one dating back into antiquity, the other of more recent vintage, but both equally false.

Quite generally accepted during ancient and medieval times, and lingering still in the minds of some persons, is the belief that the mother pelican pierces her own breast with the sharp hook on the end of her beak, and lets her young drink her blood. This pious legend of parental self-sacrifice found its way into much early religious art, and is still perpetuated on the coat-of-arms of the State of Louisiana. It seems to be based on two pelican habits; the feeding of the young by permitting them to thrust their heads and necks into the parent's beak, to feed on fish regurgitatel from the crop; and the pelican's way of resting its wet beak-end on its breast, sometimes leaving a patch of darkened feathers.

The more modern pelican-myth is based on the big chamois-skin-like pouch under the bird's long beak. Its remarkable capacity has been celebrated in a slightly profane limerick that presumably everybody has heard. But the pelican's pouch will not store a week's rations, or even a day's. The pelican uses it as a fishing-net, not as a storage-place. He can gulp down amazing quantities of fish, but they go to his crop and his stomach.

Pelicans in more northern areas are as a rule seen only in summer; the birds migrate southward in the winter. Perhaps the most famous of such pelican summer colonies is the one that nests on a couple of tiny islands in Yellowstone Lake, and add to the region's picturesqueness for the benefit of park tourists. These birds are said to fly all the way to the Gulf of California for their winter fishing.

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CHEMICAL CALCULATIONS—Bernard Jaffe—*World Book,* rev. ed., 180 p., illus., $1.60. For high school students.

CONTRIBUTIONS TO THE STUDY OF TUBERCULOSIS—Research Department, *National Jewish Hospital at Denver,* 378 p., illus., paper, free to medical libraries and chest specialists from National Jewish Hospital at Denver, 3800 East Colfax Ave., Denver 6, Colo.

COOPERATION IN THE AMERICAS—Interdepartmental Committee on Scientific and Cultural Cooperation — *Govt. Printing Office,* 146 p., illus., paper, 40 cents. Department of State publication 2971. An account of what is being done to improve inter-American cultural relations, including the story of the book translation program in which Science Service participates.

EPILEPSY: Psychiatric Aspects of Convulsive Disorders—Paul H. Hoch and Robert P. Knight, Eds.—*Grune and Stratton,* 214 p., illus., $4.00. Written by experts, this book stresses the clinical approach rather than research activities and gives attention to the psychiatric as well as the medical needs of the patient.

FLOWERS OF PRAIRIE AND WOODLAND—Edith S. Clements—*Wilson,* 83 p., illus., $2.25. Flower lovers will enjoy this little book, beautifully illustrated in color.

GRAND COULEE: From Hell to Breakfast—Fred O. Jones—*Binfords & Mort,* 64 p., illus., $2.00. The story of a great dam done mostly in photographs and drawings. The author was formerly geologist for the U. S. Bureau of Reclamation.

HANDBOOK OF CHILD GUIDANCE—Ernest Harms, ed.—*Child Care Publications,* 751 p., $8.60. Contributions from specialists on guidance for the normal child, the physically handicappel, and problem and subnormal children, with chapters on child guidance training and social and religious aspects.

LIBERIA—Charles Morrow Wilson—*William Sloane Associates,* 226 p., illus., $3.75. An interesting description of a little-known part of the world.

MAGIC SHADOWS: The Story of the Origin of Motion Pictures—Martin Quigley, Jr.—*Georgetown Univ. Press,* 191 p., illus., $3.50. The romantic story of all the early beginnings dating back to 5000 B. C. and the ancient Chinese shadow plays.

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THE SCIENCE OF PLASTICS: A Comprehensive Source Book Based on the Original Literature for 1942-1946, Vol. I.—H. Mark and E. S. Proskaur, Eds.—*Interscience,* 632 p., illus., $9.00. A book of abstracts.

SWEDEN, THE MIDDLE WAY—Marquis W. Childs—*Penguin,* rev. ed., 178 p., paper, 35 cents. An account of the experience of a modern European country in attempting to avoid the political extremes.

TECHNIQUES OF OBSERVING THE WEATHER —B. C. Haynes—*Wiley,* 272 p., illus., $4.00. Written for high-school and college courses by the chief of the observations section, U. S. Weather Bureau.

TOOLS: And How To Use Them for Woodworking and Metal Working—Alfred P. Morgan—*Crown,* 352 p., illus., $3.00.

TRANSACTIONS OF THE KANSAS ACADEMY

OF SCIENCE, Vol. 50—*Kansas Academy of Science,* 367 p., illus., paper, $2.00

THE WEEKLY READER PARADE—Editors, My Weekly Reader—*Simon and Schuster,* 116 p., illus., $1.50. An attractive book for young children containing a considerable amount of science.

WHAT ELECTRONICS DOES—Vin Zeluff and John Markus—*McGraw-Hill,* 306 p., illus., $3.00. An explanation of how hundreds of electronic devices work, written by associate editors of *Electronics.*

Science News Letter, February 14, 1948

PHYSIOLOGY

Sex Influences Malaria

➤ SEX has something to do with the severity of malaria, at least in poultry. Two recent studies, one on chickens, the other on ducks, have closely parallel indications on this point.

The research on chickens, which was carried out by Drs. B. F. Bennison and G. Robert Coatney of the National Institute of Health, appears in *Science* (Feb. 6). They inoculated young chicks with the germs of a type of malaria peculiar to fowls. Subsequent examination of their blood showed that the female chicks were "taking it harder" than were the future roosters. The young females also got less benefit from treatment with quinine than did their brothers.

The experiments on ducks were carried out on adult birds by Dr. William Trager of the Rockefeller Institute for Medical Research. He found similar differences between females and drakes. This held, however, only when the ducks were not actively producing eggs. Egg-laying females were less affected than their inactive sisters.

This indication that the presence of the primary female sex hormone in the blood has a suppressive effect on the malaria germs is not borne out by one experiment performed by Drs. Bennison and Coatney. Their chicks, of course, were not producing the female sex hormone because they were immature. When this hormone was injected into them, it failed to affect the sex difference in severity of attack by the malaria parasites.

Whether these results on chicks and ducks have any significance in the several types of human malaria is still an unsettled question. Drs. Bennison and Coatney have checked over a large number of clinical records, and find no significant differences between men and women patients.

However, there is an opportunity to make a controlled test, because paretic patients are sometimes purposely given malaria infections to produce a fever that will benefit their worse malady. It is proposed to make a careful study of a considerable number of such therapeutic malarias, in the hope of obtaining a more definite answer to this newest angle in the age-old riddle of the sexes.

Science News Letter, February 14, 1948

Science Service Radio

➤ LISTEN in to a discussion on sounds from the sun on "Adventures in Science" over Columbia Broadcasting System at 3:15 p.m. EST Saturday, February 21. Grote Reber, radio physicist at the National Bureau of Standards, will be guest of Watson Davis, director of Science Service. Mr. Reber will tell you of the hissing and popping radio noises he has intercepted from the sun and stars.

Science News Letter, February 14, 1948

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❁ *ICE CUBE TRAY, composed of separated plastic compartments which hang from a flat rack over an aluminum base, permits easy separation of the cubes without the use of water. The rack may be slid entirely or partly off the base, and a cube removed by finger pressure on the plastic compartment.*

Science News Letter, February 14, 1948

❁ *MANICURING TOOL, an electric device which resembles the ordinary electric razor in size and appearance, vibrates files, buffers or cuticle rollers rapidly back and forth over the fingernail. It is in a plastic case shaped for easy handling.*

Science News Letter, February 14, 1948

❁ *NEEDLE-SYRINGE DEVICE, to enable blind diabetics to use insulin without help, holds the insulin container and the syringe and, by means of a metal guide, slips the needle into the exact center of the self-sealing rubber container top. Notches on the guide permit measurement of the amount of insulin taken into the syringe.*

Science News Letter, February 14, 1948

❁ *PUSH-BUTTON telegraphy has entered the airline communications field. It is a switching center, a section of which shows in the picture, through which telegrams are flashed with speed and efficiency. Each message is typed only at the point of origin; pushing a button gives an incoming message a route to its destination.*

Science News Letter, February 14, 1948

❁ *SOLDERING IRON with a gun-grip handle makes it easier to put the heated point directly on out-of-the-way spots where solder is needed. It is a lightweight tool, electrically heated, in a plastic casing which protects the user from heat.*

Science News Letter, February 14, 1948

❁ *INSULATING PLASTER, a lightweight, fire-resisting, granular material mixed with water to give a plastic material, forms on the walls a durable insulating coat of plastic impregnated mineral cork which also has sound-absorbing properties. It does not crumble when exposed to fire, it is claimed.*

Science News Letter, February 14, 1948

❁ *RADIOACTIVITY measuring instrument, fountain-pen sized, can be read at any time by looking through a cupped eyepiece toward a light source, and does not need the usual electrostatic voltage indicator. Within it, the observer sees a magnified scale upon which indicating lines show the amount of radiation.*

Science News Letter, February 14, 1948

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